



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8  
999 18<sup>TH</sup> STREET - SUITE 300  
DENVER, CO 80202-2466  
<http://www.epa.gov/region08>



JUN - 7 2004

Ref: 8P-W-GW

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Ms. Katherine Green  
Colorado Division of Wildlife  
6060 Broadway  
Denver, Colorado 80216

Re: UNDERGROUND INJECTION CONTROL (UIC)  
Class V Permit Application  
Additional Information

Dear Ms. Green:

On June 22, 2001, the Colorado Division of Wildlife (CDOW) office in Fort Collins, Colorado submitted to the Environmental Protection Agency Region 8 (EPA) an application for a UIC Class V permit to dispose of sanitary and laboratory waste into a septic tank/leachfield (septic system) located at the Foothills Wildlife Laboratory, 4330 La Porte Avenue west of Fort Collins, in Larimer County, Colorado. Because at that time the facility was still under construction, information about daily flow rate and chemical composition of fluid waste provided with the permit application were based on engineering design criteria and a description of chemicals used in the lab, rather than actual operational data. Best Management Practices (BMPs) for laboratory procedures were included with the permit application that were reflective of the procedures in place at that time. The BMPs have probably been modified since then. Now that the laboratory is operational, supplemental information based on actual flow rate of waste fluids through the septic system and chemical analysis of the waste fluid is necessary to provide accurate data that will enable EPA to write a technically applicable permit.

EPA administers the UIC Class V Program in Colorado as mandated by Part C of the Safe Drinking Water Act, 42 United States Code (U.S.C.) §1421 through §1428. The Federal Regulations associated with the UIC Program can be found in 40 CFR Parts 124, 144, 146, and 147. Under Section 144.27 (regulation enclosed with this letter), EPA has authority to require that the owner or operator of a Class V well provide additional information as deemed necessary by EPA "to determine whether a well may be endangering an underground source of drinking water" (USDW). The owner/operator "is prohibited from injecting into the well upon failure...to comply with the a request for information within the time period(s) specified..." in the letter.



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Please provide EPA with the following information:

- a description of the tests conducted to verify that the septic system at the Foothills Laboratory has not been sterilized by the prion inactivation solutions used during the laboratory decontamination process, the person who conducted these tests (including address and phone number), and the results of the tests;
- the average daily flow rates of waste fluid into the septic system (because of the potential variation in flow rates during hunting season as compared with the rest of the year, please provide estimates for minimum and maximum average daily flow rates);
- chemical analysis of fluid samples collected from the distribution box or the septic tank at the Foothills Laboratory;
- a detailed description of the current BMPs the laboratory now uses for the handling and disposal of laboratory wastes;
- the concentrations of LpH solutions used under the new BMPs,
- an estimated volume of LpH solutions used, and
- an estimated volume of LpH solution that goes down the drains into the septic system.

If LpH is released into the septic system above a specified concentration and volume, it can harm the septic system microbes. Without a viable population of microbes present, the septic system is ineffective for treating the sanitary waste component of the waste stream. If the septic system is not properly treating the sanitary waste before it is discharged from the leachfield, there is the potential for endangerment to the USDW. The information about the septic system tests and results will provide verification that the use of LpH at the concentrations and volumes currently being used is not harmful to the septic system microbes. The actual daily flow rate of waste fluid through the system, the concentrations and volumes of LpH solutions used in the laboratory, and the chemical analysis of fluid waste from the septic system is necessary for EPA to calculate applicable permit limits for the components of LpH. The permit will establish limits for concentrations of LpH constituents in the septic tank that will be protective of the septic system biota.

**No later than 30 calendar days from CDOW's the receipt of this letter, please** provide the requested information to EPA in writing. We realize that it may take longer to obtain the laboratory analytical results of the septic tanks waste fluids. If this is the case, please contact us to request a slight extension for providing these analytical results. Sample collection and analytical procedures are provided for your convenience as an enclosure to this letter.

If you have any questions regarding the contents of this letter or UIC Class V regulatory requirements, please contact Valois Shea of my staff at 1-800-227-8917 x6276, or (303) 312-6276.

Sincerely,



Sandra A. Stavnes  
Director  
Ground Water Program

Enclosures

40 CFR Part 144.27 Requiring other information  
Procedures for sample collection, handling, and analyses

## Procedures for Sample Collection, Handling, and Analyses

### Sample Collection and Handling Procedures

Samples to be analyzed for the volatile organic compounds (the method 524.2 analyte list plus the specific compounds listed below in Table 2a), semivolatile organic compounds, total metals (listed in Table 2b), and pH should be collected according to the procedures described below. Samples should be stored at a temperature no higher than 4°C until analyses can be performed. Use of "chain of custody" forms is recommended to document sample handling from the time the sample is collected through sample analysis. Sample container, preservation and holding time information is summarized in Table 1. The analytical methods to be used are listed in Tables 2a and 2b. Before collecting samples, check with the laboratory that will be analyzing the samples to verify that the laboratory is able to perform the analytical methods required and to determine the sample volume required for each type of analysis.

Collect the following fluid samples either from a sampling port located between the septic tank outlet and the leachfield (ideally a distribution box) or from the septic tank. Extract a volume of water using a sampling device that can be lowered into the distribution box or septic tank. In the septic tank, the sample collection device should be lowered beneath below the scum line, then opened to collect fluid from below the scum line and above the sludge layer.

To avoid the release of any volatile components from agitation of the waste fluid, the sample for **Volatile Organic Compounds (VOCs)** should be collected first. The collected fluid should be poured slowly from the sample collection device into at least two (2) cool, tilted 40 ml glass bottles, minimizing turbulence of the fluid which would degas the dissolved volatiles. **Hydrochloric Acid (HCl)** is added as a preservative to bring the sample pH down to less than 2. The acid can be added to the vial before the sample is poured in. If chlorine is present in the waste stream, sodium thiosulfate (or ascorbic acid) should be added to the sample bottles before the sample is poured in. The sample should fill the bottle with a positive meniscus on top. Cap each bottle with a Teflon lined septum. After capping, turn the bottle upside down to check for air bubbles. If there are air bubbles, uncapped the bottle and add additional drops of sample, then repeat capping and checking for bubbles.

The pH of a sample is determined electrometrically using either a glass electrode in combination with a reference potential or a combination electrode and thermometer or temperature sensor to automatically compensate for pH variation with temperature. Each instrument/electrode system must be calibrated at a minimum of two (2) points that bracket the expected pH of the samples to be measured and are approximately three (3) pH units or more apart. Place the sample in a clean glass beaker using a sufficient volume to cover the sensing elements of the electrodes and stir at a constant rate to provide homogeneity and suspension of solids. Rate of stirring should minimize the air transfer rate at the air/water interface of the sample. Note and record sample pH and temperature. Repeat measurements on successive volumes of sample until the values differ by less than 0.1 pH units. Three (3) or four (4) volume changes are usually sufficient. Alternatively electrodes may be immersed directly into the sample stream to an adequate depth and moved in a manner to insure sufficient sample movement across the electrode sensing element as indicated by drift-free (<0.1 pH) readings. If the sample temperature differs by more than 2°C from the buffer solution, the measured pH values must be corrected. Instruments are equipped with automatic or manual compensators that electronically adjust for temperature differences. Refer to manufacturer's instructions. Report pH to the nearest 0.1 unit and temperature to the nearest degree Centigrade.

The samples to be analyzed for **Semivolatiles** are poured into at least one (1) gallon amber glass jars with teflon lined caps and preserved with **Hydrochloric acid**. If chlorine is present in the waste stream, sodium thiosulfate (or ascorbic acid) should be added to the sample.

The samples collected for analysis of **Total Metals** are poured into at least one (1) liter polyethylene cubitainers or a glass jar. **Nitric acid (HNO<sub>3</sub>)** is added as a preservative to bring the sample pH down to less than 2. Test the pH to insure that it is below the required level of less than 2. If the pH is not less than 2, then add additional nitric acid.

**Table 1. Sample handling information.**

Constituent	Sample Container	Preservation*	Maximum Holding Time	Recommended Sample Size**
Metals	plastic or glass	Nitric Acid (HNO <sub>3</sub> ) pH<2	28 days	
<b>Volatiles:</b> Method 524.2 list, plus formaldehyde hexylene glycol glycolic acid isopropanol	40ml glass, teflon-lined septa, sampled in duplicate	cool to ≤ 4 °C, Hydrochloric Acid (HCl) pH<2, if chlorine is present dechlorinate with 0.008% Sodium thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) or ascorbic acid	14 days	2 ea. 40 ml
<b>Semivolatiles:</b> o-benzyl-p-chlorophenol p-tertiary-amylphenol o-phenyl phenol	amber glass, teflon cap liners	cool to ≤ 4 °C, store in dark, if chlorine is present dechlorinate with 0.008% Sodium thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) or ascorbic acid	extract within 7 days, analyze within 40 days	1 gallon
pH	glass or immerse electrode directly into waste stream	none Measurement conducted in the field	NA Measurement conducted in the field	a sufficient volume to cover the sensing elements of the electrodes and allow stirring

\*Samples should be held at or below 4 °C until analyses can be performed.

\*\*Consult with laboratory to verify the required volume of sample. There should be a VOC trip blank consisting of 2 (two) 40 ml vials containing analyte-free water included in the with the VOC samples. Consult with the laboratory to determine if additional quality control samples would be of benefit.

**Table 2a. Volatile Organic Compounds, Semivolatiles, and Inorganic Constituents to be Analyzed and Analytical Methods to Be Used for Analyses**

		EPA	Standard Methods (18 <sup>th</sup> edition)	EPA	Standard Methods (18 <sup>th</sup> edition)
Constituent	Maximum concentration allowed	Analytical Method to determine concentration (SDWA)		Analytical Method to determine concentration (CWA)	
<b><u>Volatiles</u></b>				624	6210 B
Method 524.2 analytes	MCLs and HAs	524.2		1624	
formaldehyde	1 mg/l	N/A	N/A	1667	
hexylene glycol	4 mg/l				
glycolic acid	12.6 mg/l				
isopropanol	8 mg/l				
<b><u>Semivolatiles</u></b>				625	6410 B
o-benzyl-p-chlorophenol	6.4 mg/l	525.2		1625	6420 B
p-tertiary-amylphenol	3.0 mg/l	555			
o-phenyl phenol	0.5 mg/l				
pH		150.1	4500-H <sup>+</sup> B	150.1	

**Table 2b. Total Metals and Analytical Methods to Be Used for Analyses**

Constituent	EPA Analytical Methods	Permit Limit (mg/l) <sup>1</sup>
Aluminum	200.7, 200.8, 200.9	0.22
Antimony	200.8, 200.9	0.006
Arsenic	200.7, 200.8, 200.9	0.005
Barium	200.7, 200.8	2
Beryllium	200.7, 200.8, 200.9	0.004
Cadmium	200.7, 200.8, 200.9	0.005
Chromium	200.7, 200.8, 200.9	1
Copper	200.7, 200.8, 200.9	1.3
Iron	200.7, 200.9	5
Lead	200.8, 200.9	0.15
Manganese	200.7, 200.8, 200.9	0.8
Mercury	245.1, 245.2, 200.8	0.002
Nickel	200.7, 200.8, 200.9	0.1
Selenium	200.8, 200.9	0.05
Silver	200.7, 200.8, 200.9	0.1
Thallium	200.8, 200.9	0.002
Zinc	200.7, 200.8	2

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<sup>1</sup>These permit limits reflect the Primary Drinking Water Standards in 40 CFR, Part 141 and health advisories in effect on the date the Final Permit is issued. If any Primary Drinking Water Standards or health advisories are subsequently changes, then these permit limits change accordingly.

**Title 40: Protection of Environment**  
**PART 144—UNDERGROUND INJECTION CONTROL PROGRAM**  
**Subpart C—Authorization of Underground Injection by Rule**

**§ 144.27 Requiring other information.**

(a) For EPA administered programs only, in addition to the inventory requirements of §144.26, the Regional Administrator may require the owner or operator of any well authorized by rule under this subpart to submit information as deemed necessary by the Regional Administrator to determine whether a well may be endangering an underground source of drinking water in violation of §144.12 of this part.

(b) Such information requirements may include, but are not limited to:

(1) Performance of ground-water monitoring and the periodic submission of reports of such monitoring;

(2) An analysis of injected fluids, including periodic submission of such analyses; and

(3) A description of the geologic strata through and into which injection is taking place.

(c) Any request for information under this section shall be made in writing, and include a brief statement of the reasons for requiring the information. An owner or operator shall submit the information within the time period(s) provided in the notice.

(d) An owner or operator of an injection well authorized by rule under this subpart is prohibited from injecting into the well upon failure of the owner or operator to comply with a request for information within the time period(s) specified by the Director pursuant to paragraph (c) of this section. An owner or operator of a well prohibited from injection under this section shall not resume injection except under a permit issued pursuant to §§144.25, 144.31, 144.33 or 144.34.

[49 FR 20182, May 11, 1984, as amended at 58 FR 63896, Dec. 3, 1993]